

# DSC HD-HD

HDMI-to-HDMI Scaler



# Safety Instructions

## Safety Instructions • English

**WARNING:** This symbol, ⚠, when used on the product, is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

**ATTENTION:** This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, [www.extron.com](http://www.extron.com).

## Instructions de sécurité • Français

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**ATTENTION :** Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec le matériel.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, [www.extron.com](http://www.extron.com).

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**VORSICHT:** Dieses Symbol ⚠ auf dem Produkt soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Weitere Informationen über die Sicherheitsrichtlinien, Produkthandhabung, EMI/EMF-Kompatibilität, Zugänglichkeit und verwandte Themen finden Sie in den Extron-Richtlinien für Sicherheit und Handhabung (Artikelnummer 68-290-01) auf der Extron-Website, [www.extron.com](http://www.extron.com).

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**ATENCIÓN:** Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento recogidas en la documentación proporcionada con el equipo.

Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, [www.extron.com](http://www.extron.com).

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Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: [www.extron.com](http://www.extron.com), номер по каталогу - 68-290-01.

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**注意:** ⚠ 产品上的这个标志意在提示用户设备随附的用户手册中有重要的操作和维护(维修)说明。

关于我们产品的安全指南、遵循的规范、EMI/EMF 的兼容性、无障碍使用的特性等相关内容, 敬请访问 Extron 网站 [www.extron.com](http://www.extron.com), 参见 Extron 安全规范指南, 产品编号 68-290-01。

## Chinese Traditional (繁體中文)

**警告:** ⚠ 若產品上使用此符號, 是為了提醒使用者, 產品機殼內存在著可能會導致觸電之風險的未絕緣危險電壓。

**注意:** ⚠ 若產品上使用此符號, 是為了提醒使用者, 設備隨附的用戶手冊中有重要的操作和維護(維修)說明。

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安全上のご注意、法規厳守、EMI/EMF適合性、その他の関連項目については、エクストロンのウェブサイト [www.extron.com](http://www.extron.com) より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01) をご覧ください。

## Korean

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# FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. The Class A limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. This interference must be corrected at the expense of the user.

**NOTE:** For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the “[Extron Safety and Regulatory Compliance Guide](#)” on the Extron website.

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AAP, AFL (Accu-Rate Frame Lock), ADSP (Advanced Digital Sync Processing), Auto-Image, CableCover, CDRS (Class D Ripple Suppression), DDSP (Digital Display Sync Processing), DMI (Dynamic Motion Interpolation), Driver Configurator, DSP Configurator, DSVP (Digital Sync Validation Processing), EQIP, FastBite, FOXBOX, Global Configurator, IP Intercom HelpDesk, LinkLicense, MAAP, MicroDigital, ProDSP, QS-FPC (QuickSwitch Front Panel Controller), Scope-Trigger, SIS, Simple Instruction Set, Skew-Free, SpeedNav, Triple-Action Switching, XTRA, ZipCaddy, ZipClip

## Conventions Used in this Guide

### Notifications

The following notifications are used in this guide:

**CAUTION:** Risk of minor personal injury.

**ATTENTION :** Risque de blessure mineure.

**ATTENTION:**

- Risk of property damage.
- Risque de dommages matériels.

**NOTE:** A note draws attention to important information.

**TIP:** A tip provides a suggestion to make working with the application easier.

### Software Commands

Commands are written in the fonts shown here:

```
^ARMerge Scene,,Op1 scene 1,1 ^B 51 ^W ^C  
[ 01 ] R 0004 00300 00400 00800 00600 [ 02 ] 35 [ 17 ] [ 03 ]  
Esc [X1] * [X17] * [X20] * [X23] * [X21] CE ←
```

**NOTE:** For commands and examples of computer or device responses mentioned in this guide, the character “Ø” is used for the number zero and “O” is the capital letter “o.”

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 208.132.180.48: bytes=32 times=2ms TTL=32  
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx -t  
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.  
Click the **OK** button.

## Specifications Availability

Product specifications are available on the Extron website, [www.extron.com](http://www.extron.com).

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# Introduction

This section provides an overview of the DSC HD-HD scaler, covering the following topics:

- [About this Guide](#)
- [About the DSC HD-HD](#)
- [Features](#)
- [Application Diagram](#)

## About this Guide

The *DSC HD-HD User Guide* describes the Extron DSC HD-HD Scaler and provides instructions for experienced installers to install, configure, and operate it.

In this guide the terms “scaler” and “DSC” are used interchangeably to refer to the DSC HD-HD.

## About the DSC HD-HD

The DSC HD-HD is a single input and output, HDCP compliant, HDMI-to-HDMI scaler that accepts multiple video resolutions and offers multiple output rates. It provides 30-bit processing and 1080i, 576i, and 480i deinterlacing, as well as embedded audio. Configuration and control are provided via front panel controls with an on-screen display (OSD) and a front panel USB Config port. Simple Instruction Set (SIS) commands and the Windows®-based configuration software can be used to communicate with the DSC via the front panel Config port.

The DSC HD-HD accepts computer and SMPTE video resolutions up to 1920x1200, 1080p @ 60 Hz, and 2K, with output rates from 480p to 1920x1200, including HDTV 1080p @ 60 Hz, and 2K. It can embed two-channel or multi-channel HDMI audio in the output.

The unit has a compact 1 inch (2.54 mm) high by a quarter-rack wide by 6 1/2 inches (21.5 cm) deep enclosure and can be rack or furniture mounted.

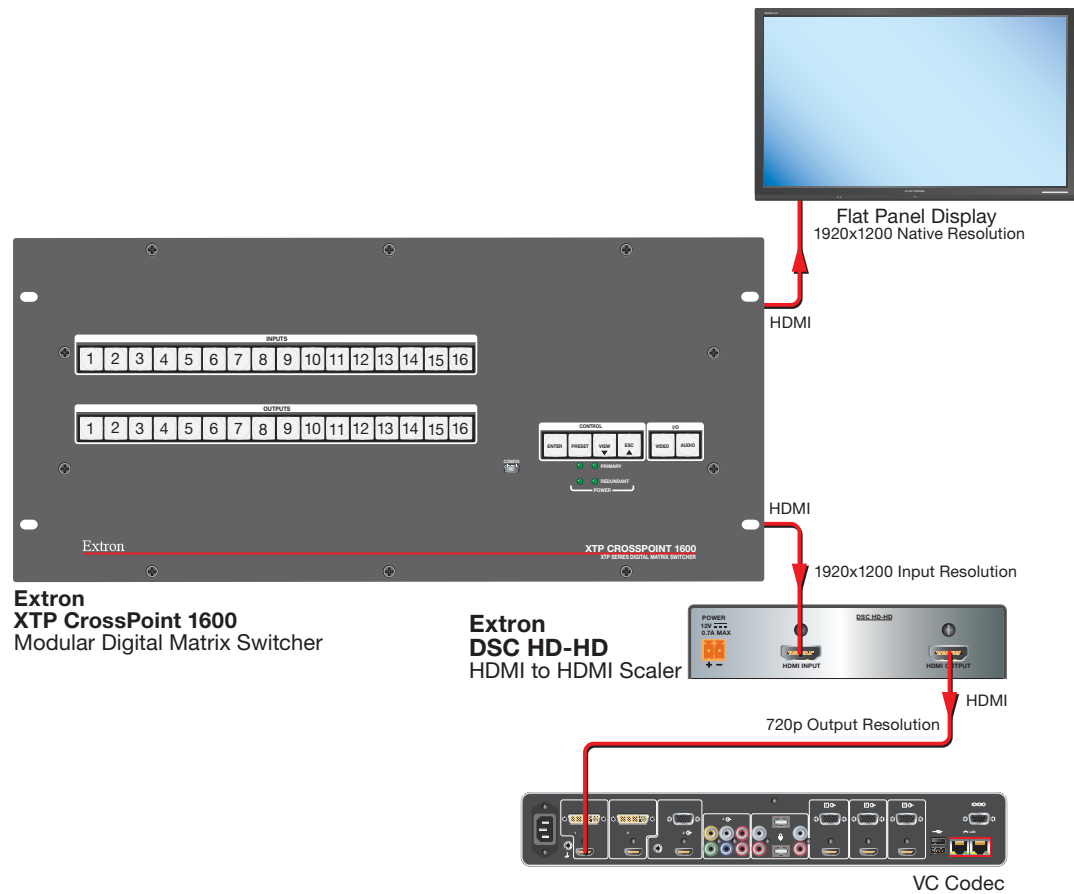
## Features

- **HDMI video cross conversion** — Provides high quality scaling and conversion of HDMI video resolutions and frame rates.
- **Input and output connectors** — One female HDMI input and one female HDMI output connector
- **Advanced scaling engine** — Performs image scaling and video format conversion at 30-bit precision for enhanced color accuracy and picture detail. High performance deinterlacing for 480i, 576i, and 1080i signals from HD sources delivers optimized image quality.
- **Accepts multiple HDMI signal formats** — Accepts HDMI signals with resolutions up to 1920x1200, 1080p @ 60 Hz, and 2K, and is compatible with standard definition and high resolution video.

- **HDCP compliance** — Fully supports HDCP-encrypted sources with selectable authorization for unencrypted content.
- **HDCP authentication and signal presence confirmation** — Provides real-time verification of HDCP status for the digital video input and output
- **HDMI to DVI interface format conversion** — Automatically enables or disables embedded audio and infoframes and sets the correct color space for proper connection to HDMI and DVI displays.
- **EDID emulation** — Provides selectable resolutions and refresh rates and a means for specifying the rate of the incoming signal, ensuring proper communication with the video source.
- **EDID Minder** — Manages EDID communication between connected devices, ensuring that the source powers up properly and reliably outputs content for display.
- **Aspect ratio control of video output** — Enables selection of a fill mode, which provides a full screen output, or a follow mode, which preserves the original aspect ratio of the input signal.
- **HDCP visual confirmation** — A full-screen green signal is sent when HDCP-encrypted content is transmitted to a non-HDCP compliant display.
- **Windows-based configuration program** — The Product Configuration Software (PCS) program enables configuration and control of the scaler from a computer via a USB connection.
- **Front panel LED indicators** — Indicate signal presence, HDCP status, audio format, and power for real-time feedback and monitoring of key performance parameters.
- **On-screen display (OSD)**— Provides a menu system that lets you set up the DSC using the front panel buttons.
- **Output Standby Mode** — Automatically mutes the video and sync output to the display device when no active input signal is detected. This allows the projector or flat-panel display to automatically enter into standby mode to save energy and enhance lamp or panel life.
- **Automatic 3:2 and 2:2 pulldown detection** — These advanced film mode processing techniques help maximize image detail and sharpness for 480i, 576i, and HDTV 1080i sources that originated from film.
- **LockIt HDMI cable lacing bracket** is provided.
- **Internal test patterns** — Offers crop, grayscale, color bars, alternating pixels, and crosshatch patterns, and audio pink noise.
- **Signal presence confirmation** — Provides real-time verification of status for the digital video input and output through front panel LEDs.
- **Front panel security lockout (executive mode)** — Locks out all front panel functions. All functions remain available through the configuration software or SIS commands via the USB connection.
- **USB control port** — The front panel USB Config port enables firmware updates and configuration of the DSC via SIS commands and the PCS software.
- **Rack and furniture mounting**



## Application Diagram



**Figure 1.** DSC HD-HD Application Example

# Installation

This section provides a description of the DSC HD-HD rear panel connectors and instructions for cabling. Topics include:

- **Rear Panel Connections**
- **Securing the HDMI Connector Using the LockIt Bracket**
- **Connecting for Remote Control**
- **Wiring the Power Connector**

## **ATTENTION:**

- Installation and service must be performed by authorized personnel.
- L'installation et l'entretien doivent être effectués uniquement par un électricien qualifié.

## Rear Panel Connections

**CAUTION:** Remove power from the system before making any connections.

**ATTENTION :** Couper l'alimentation avant de faire l'installation électrique.

## **ATTENTION:**

- Use electrostatic discharge precautions (be electrically grounded) when making connections. Electrostatic discharge (ESD) can damage equipment, although you may not feel, see, or hear it.
- Prenez des précautions contre les décharges électrostatiques (soyez électriquement relié à la terre) lorsque vous effectuez des connexions. Les décharges électrostatiques (ESD) peuvent endommager l'équipement, même si vous ne pouvez pas le sentir, le voir ou l'entendre.

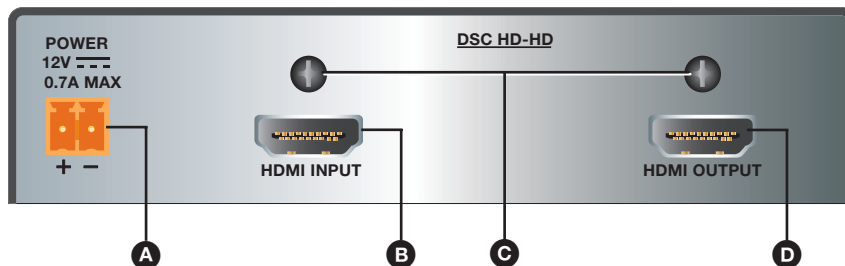


Figure 2. DSC HD-HD Rear Panel

- Ⓐ **Power connector**
- Ⓑ **HDMI Input connector**
- Ⓒ **LockIt mounting screws**
- Ⓓ **HDMI Output connector**

- A Power connector** — Connect the provided 12 V, 1 A power supply to this 2-pole captive screw connector (see **Wiring the Power Connector** on page 8).

**ATTENTION:**

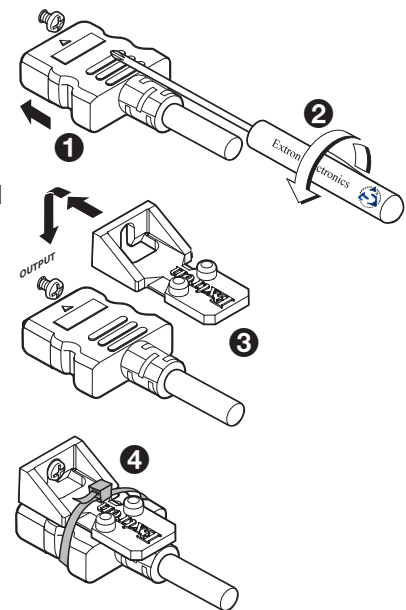
- Do not connect power to the unit until you have read the **CAUTION and ATTENTION notices** on page 8.
- Ne branchez pas l'alimentation au l'unité avant d'avoir lu les mises en garde **CAUTION et ATTENTION** de la page 8.

- B HDMI Input connector** — Connect an HDMI source to this female HDMI input connector. Secure the HDMI input to the HDMI connector using the LockIt bracket (see “Securing the HDMI Connector using the LockIt Bracket”).
- C LockIt mounting screws** — Use these screws to attach each LockIt lacing bracket to the HDMI connector below it (see “Securing the HDMI Connector Using the LockIt Bracket,” below).
- D HDMI Output Connector** — Connect an HDMI display device to this female HDMI output connector. Secure the HDMI output to the HDMI connector using the LockIt bracket (see “Securing the HDMI Connector using the LockIt Bracket”).

## Securing the HDMI Connector Using the LockIt Bracket

After connecting an input or output device to an HDMI connector, secure the connector in place with the provided LockIt bracket as follows:

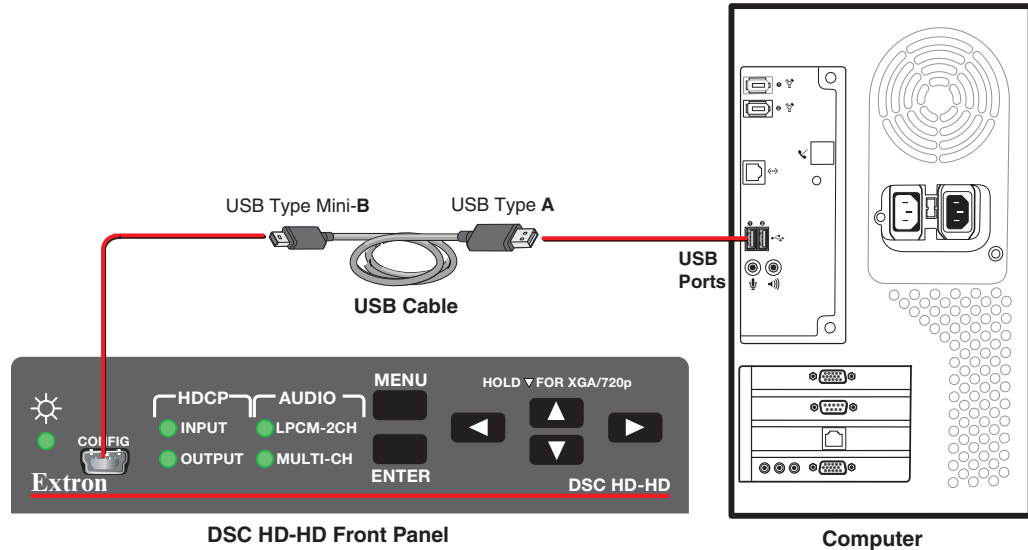
1. Plug the HDMI cable into one of the rear panel HDMI connectors.
2. Loosen the mounting screw directly above the HDMI connector enough to allow the LockIt lacing bracket to be placed above it.
3. Place the LockIt lacing bracket onto the screw and slide it down against the HDMI connector. Tighten the screw to secure the bracket.
4. Loosely wrap the included tie wrap around the HDMI connector and LockIt lacing bracket.
5. While holding the connector securely against the lacing bracket, tighten the tie wrap, then remove any excess length.
6. Repeat steps 1 through 5 for the other HDMI connector.



## Connecting for Remote Control

The USB Config port on the front panel enables you to connect the DSC to a computer for configuration and firmware updating via SIS commands or the PCS software:

1. Use a USB A-to-mini-B cable to connect the DSC USB Config port to a USB port on your computer.



**Figure 3. Connecting the DSC to the Computer**

2. Power on both the computer and the DSC.
3. If this is the first time you have connected a DSC to this particular USB port on your computer, one of the following screens may open:
  - **Windows XP and earlier:** If the following screen is displayed, specify whether you want the computer to connect to Windows Update in order to search the web for the driver that it needs to communicate with the DSC via the USB port (this is not necessary if the USB driver already exists on your computer). An Internet connection may be required.



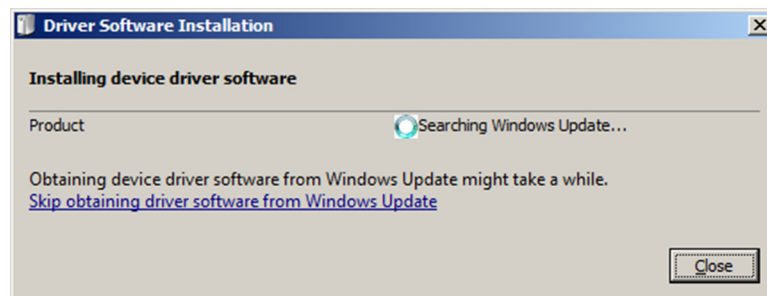
**Figure 4. Found New Hardware Wizard Opening Screen**

Select one of the following radio buttons, then click the **Next** button:

- Select the **Yes, this time only** radio button if you want your computer to connect to Windows Update only this one time.
- Select **Yes, now and every time I connect a device** if you want the computer to automatically connect to Windows Update every time the DSC is connected to this USB port.
- Select **No, not this time** if you do not want the computer to connect to Windows Update at this time (for example, if the driver is already installed).

**NOTE:** This wizard appears only the **first** time you connect the DSC to each USB port. You do not see the wizard again unless you connect the DSC to a different USB port on your computer.

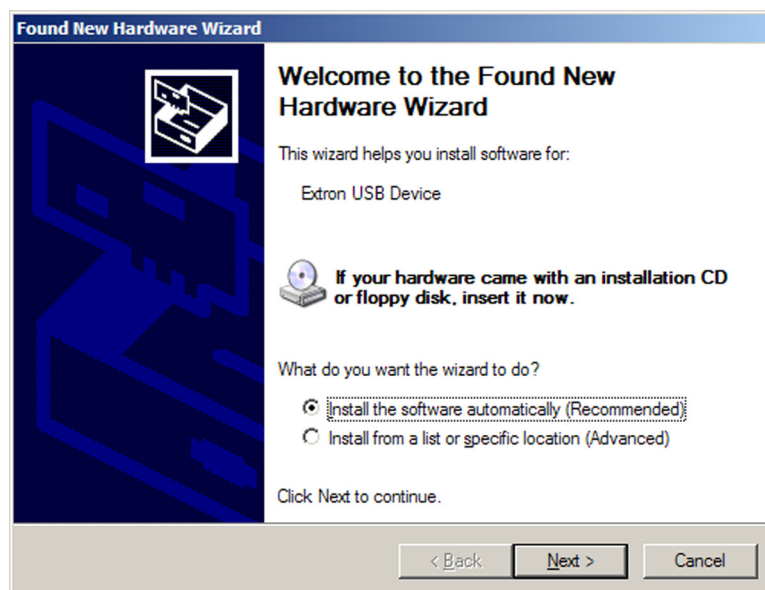
- **Windows 7 and later:** A pop-up prompt appears on the Windows taskbar informing you that Windows is searching Windows Update for USB software. If desired, click the USB icon to view the progress of the search. The Driver Software Installation window appears:



**Figure 5. Driver Software Installation Window for USB Software**

Close the Driver Software Installation window when installation is finished.

4. **Windows XP and earlier:** Click **Next**. On the next screen, make sure that the **Install the software automatically (Recommended)** radio button is selected, then click **Next** (you do not need to insert a disc). Your computer locates the driver needed for it to communicate with the DSC via the USB port.



**Figure 6. Selecting the Radio Button to Install the USB Driver Automatically**

5. **Windows XP or earlier:** When the Completed screen appears, click **Finish** to close the wizard.

**Windows 7 or later:** When the USB software has been located and downloaded, the message **Ready** to use appears on the Driver Software Installation screen (a pop-up message appears above the Windows taskbar if the screen is closed). Click **Close** to close the status window.

6. Configure the DSC as desired, using SIS commands (see [SIS Commands](#) on page 21), the OSD (see [On-screen Display](#) on page 11), or the Windows-based configuration program (see the help file for the program).

## Wiring the Power Connector

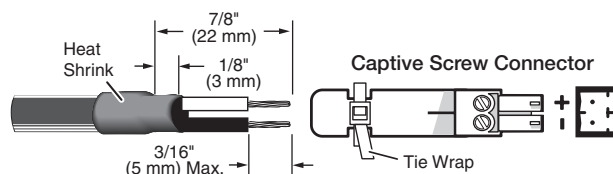
**CAUTION: Risk of electric shock.** The wires must be kept separate while the power supply is plugged in. Remove power before wiring.

**ATTENTION : Risque de choc électrique.** Les deux cordons d'alimentation doivent être tenus à l'écart l'un de l'autre quand l'alimentation est branchée. Couper l'alimentation avant de faire l'installation électrique.

### ATTENTION:

- The power supply must not be permanently fixed to the building structure or similar structures.
- La source d'alimentation ne devra pas être fixée de façon permanente à une structure de bâtiment ou à une structure similaire.
- The power supply must not be located within environmental air handling spaces or the wall cavity.
- La source d'alimentation doit être située à proximité de l'équipement audiovisuel Extron dans un emplacement habituel, avec un degré de pollution 2, fixée à une estrade, un bureau, ou dans une baie technique à l'intérieur d'un placard dédié.
- The installation must be in accordance with the applicable provisions of the National Electrical Code ANSI/NFPA 70, Article 725 and the Canadian Electrical Code, Part 1, Section 16.
- Cette installation doit être en accord avec les mesures qui s'applique au National Electrical Code ANSI/NFPA 70, article 725, et au Canadian Electrical Code, partie 1, section 16.
- The power supply must be located in the same vicinity as the Extron AV processing equipment in an ordinary location, Pollution Degree 2, secured to a podium, a desk, or an equipment rack within a dedicated closet.
- La source d'alimentation doit être située à proximité de l'équipement de traitement audiovisuel dans un endroit ordinaire, avec un degré 2 de pollution, fixé à un équipement de rack à l'intérieur d'un placard, d'une estrade, ou d'un bureau.
- Always use a power supply provided by or specified by Extron. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the end product.
- Utilisez toujours une source d'alimentation fournie ou recommandée par Extron. L'utilisation d'une source d'alimentation non autorisée annule toute conformité réglementaire et peut endommager la source d'alimentation ainsi que le produit final.

A 12 VDC, 1 A power supply is provided with the DSC HD-HD. Should it be necessary to attach a 2-pole captive screw connector to your power supply, follow these instructions:



**Figure 7. Wiring the Power Connector**

1. Cut the DC output cord to the length needed.
2. Strip the jacket to expose 3/16 inch (5 mm) of the conductors.

**ATTENTION:**

- The length of the exposed wires in the stripping process is critical. The ideal length is 3/16 inch (5 mm). If the exposed portion is longer, the wires may touch, causing a short circuit between them. If the exposed wires are shorter, they can be easily pulled out, even if tightly fastened by the captive screws.
- La longueur des câbles exposés est primordiale lorsque l'on entreprend de les dénuder. S'ils sont un peu plus longs, les câbles exposés pourraient se toucher et provoquer un court circuit. **S'ils sont un peu plus courts, ils pourraient sortir, même s'ils sont attachés par les vis captives.**
- Do not tin the wires. Tinned wire does not hold its shape and can become loose over time.
- Ne pas étamer les câbles. Les câbles étamés ne sont pas aussi bien fixés dans les terminaisons des connecteurs à vis captives et pourraient sortir.

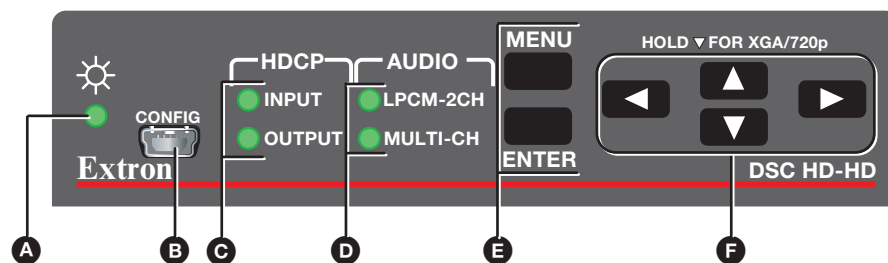
3. Slide the leads into the supplied 2-pole captive screw plug and secure them, using a small screwdriver.
4. To verify the power cord polarity before connecting the plug, connect the power supply with no load and check the output with a voltmeter.
5. Use the supplied tie wrap to strap the power cord to the extended tail of the connector.

# Operation

This section discusses the functions available through the front panel and the on-screen display (OSD) to configure and operate the DSC HD-HD. Topics include:

- **Front Panel Features**
- **On-screen Display**
- **Changing the Output Resolution and Refresh Rate**
- **Locking the Front Panel (Executive Mode)**
- **Resetting the Unit**

## Front Panel Features



**Figure 8. DSC HD-HD Front Panel**

- |                      |                                   |
|----------------------|-----------------------------------|
| <b>A</b> Status LED  | <b>D</b> Audio LEDs               |
| <b>B</b> Config port | <b>E</b> Menu and Enter buttons   |
| <b>C</b> HDCP LEDs   | <b>F</b> Navigation arrow buttons |

**A Status LED (power and signal) —**

- Lights amber steadily when the unit is powered on but no signal is present.
- Blinks amber every 3 seconds when the unit is in standby mode.
- Lights green steadily when both power and an input signal are present.

**B Config port —** Connect a computer to this USB mini-B port for device configuration, control, and firmware upgrades.

**C HDCP LEDs**

- **Input** — This green LED lights when an encrypted input signal is detected. It is off when an unencrypted signal or no active signal is detected.
- **Output** — This green LED lights when the output video signal is encrypted. It is off when the output signal is unencrypted or there is no display device connected.

**D Audio LEDs**

- **LPCM-2CH:** This green LED lights when embedded LPCM two-channel audio is detected. It is off when there is no signal, or a signal with no audio or multi-channel audio embedded.
- **Multi-CH:** This green LED lights when embedded multi-channel (three or more channels) or bitstream (non-PCM) audio is embedded in the signal. It is off if there is no signal, or a signal with no audio or two-channel audio embedded.



- E Menu and Enter buttons** — These buttons enable you to access and make selections from the on-screen display menus (see “Using the Front Panel Buttons with the OSD Menus,” below, for detailed explanations of these buttons and the arrow buttons).
- F Navigation arrow buttons** — These left ◀, right ▶, up ▲, and down ▼ arrow buttons enable you to step through the OSD submenus. You can also press them to **lock the front panel controls** (executive mode) (see page 20) and **reset the output rate** (see page 20).

## On-screen Display

The on-screen display enables you to configure and adjust the DSC HD-HD from menus displayed on a monitor or other display device connected to the rear panel output.

**NOTE:** The settings available through these menus can also be selected via SIS commands (see the **Remote Configuration and Control** section, beginning on page 21).

### Menu Overview

The OSD main menu has three configuration submenus and a read-only information screen. The **OSD menu table** on page 13 summarizes the submenus and their options.

**NOTE:** The Device Info screen is read-only and gives current device status.

The menu always displays the following items, regardless of which submenu is displayed.

- **Company name (Extron Electronics) and product name (DSC HD-HD)** are in the upper-left corner.
- **Firmware version number** is in the upper-right corner.
- **Current input resolution** and refresh rate are in the lower-left corner.
- **Current output resolution** and refresh rate are in the lower-right corner.

### Using the Front Panel Buttons with the OSD Menus

The front panel navigation buttons enable you to access the OSD and make selections from its menus.

- **Menu** — Press this button to open and close the OSD. Pressing it from within a submenu or a submenu option returns you to the next higher menu level.  
For example, if you select and highlight a submenu option you did not want, pressing Menu changes the highlighting of the option to an outline. From there, you can use the up and down arrow buttons to move the outline to the desired option.
- **Enter** — Press this button to access the options on the displayed submenu (moves a yellow outline to the first submenu option in the right column). Press this button again to select the outlined submenu option. You can also use the Enter button to open the OSD, but not to close it.
- **Left ◀ and right ▶ arrows** — Press these buttons to further adjust settings for selected submenu options.

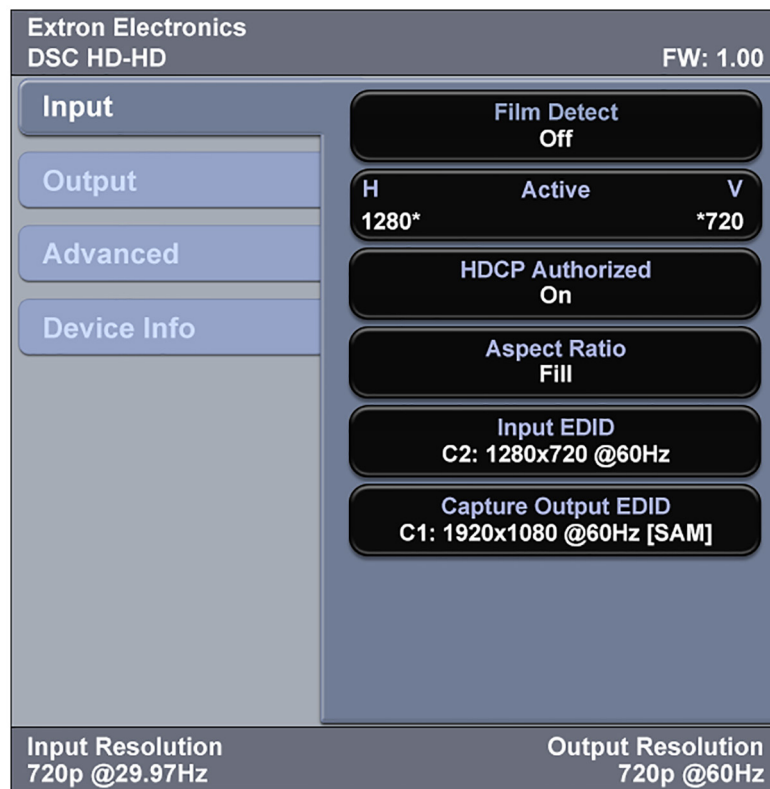
- **Up arrow ▲** — Press this button to move upward through main menu and submenu options. This button also adjusts settings for selected submenu options.
- **Down arrow ▼** — Press this button to move downward through main menu and submenu options. This button also adjusts settings for selected submenu options.

In addition, you can use this button to reset the output rate (see [Resetting the Output Rate](#) on page 20 and in conjunction with the Menu button to lock the front panel (see [Locking the Front Panel \(Executive Mode\)](#) on page 20).

## Using the OSD Menus

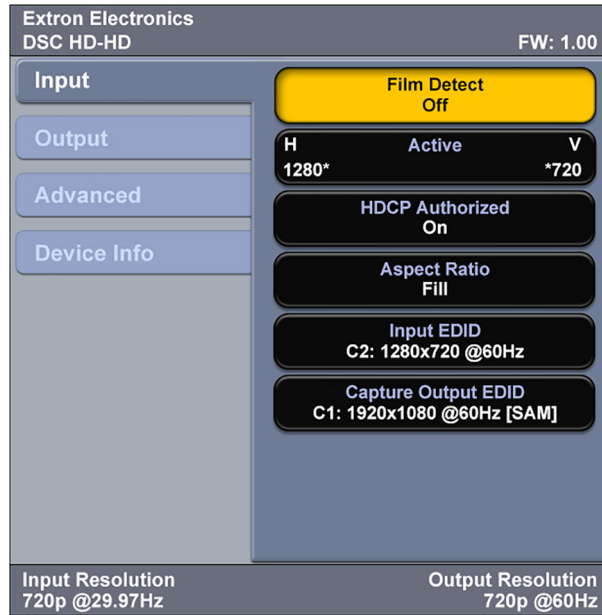
To access and use the DSC HD-HD OSD menus:

1. Press the Menu button once to open the main menu on the display. The menu opens with the **Input** submenu displayed and the menu name highlighted (see figure 9).



**Figure 9. OSD Main Menu, Initial View**

2. If the desired submenu is not displayed, press the ▼ or ▲ button on the DSC front panel to move the highlighting to the desired submenu.
3. Press the Enter button to access the submenu options. A yellow outline appears around the first option.
4. Press the ▼ or ▲ button to cycle through the submenu until the desired option is outlined in yellow.
5. Press the Enter button to select the outlined submenu item. The selected option is highlighted in yellow.



**Figure 10. Example of a Selected Submenu Option**

6. Press the ◀ or ▶ button to adjust the value in the highlighted field.
7. Press Enter to confirm the new values. Press Enter again if action confirmation is requested. The yellow highlighting is replaced by the yellow outline on the menu.
8. Do any of the following:
  - Press the ▼ or ▲ button to move to another option on the submenu and repeat steps 5 through 7.
  - Press Menu to exit the submenu.
  - Press Menu twice to exit the submenu and close the main menu.

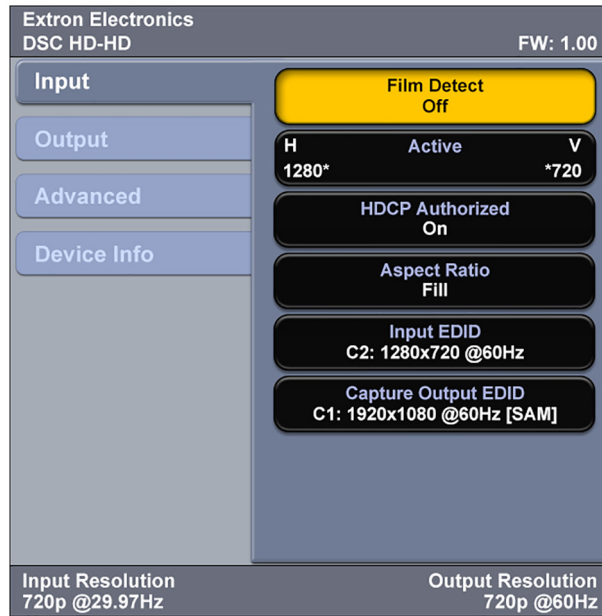
**NOTES:**

- An asterisk following an item indicates that it is the default.
- The OSD times out and closes after 1 minute if no buttons are pressed.

DSC HD-HD OSD Menu System Summary							
Submenu		Submenu Item					
Input	Film Detect	Active Pixels and lines (H and V)	HDCP Authorized	Aspect Ratio	Input EDID	Capture Output EDID	
Output	Output Resolution	Output Format	HDCP Notification	Audio Mute			
Advanced	Test Pattern	Screen Saver ----- Timeout	Factory Reset				
Device Info (Read-only)	Temp	Input (Resolution, type, rate, total lines, and total pixels)	Output (Resolution and Rate)	Format (Output and aspect ratio)	HDCP Status (HDMI input and output encryption)	Display Info	Firmware (Version and build)

## Input submenu

This submenu allows you to perform certain input adjustments and to **view** the active lines and pixels.



**Figure 11. Input Submenu (DSC HD-HD)**

- **Film Detect** — This option lets you enable and disable Film Detection. After selecting the option, press any arrow button to toggle between **On** (the default) and **Off**.  
If **On** is selected, the DSC detects:
  - 3:2 pull-down for 480i and 1080i @ 60 Hz
  - 2:2 and 24:1 pull-down for 576i and 1080i @ 50 Hz
- **Active** — This view-only field shows the width in pixels (the H value) and the height in lines (the V value) of the active video area.
- **HDCP Authorized** — This option enables or disables the DSC reporting to the source that the DSC accepts HDCP encrypted data.
  - When **On** (the default) is selected, the DSC is perceived by the source as being an HDCP compliant sink that accepts encrypted video content.
  - If **Off** is selected, the DSC does not report to the source as accepting encrypted data. Some devices do not send encrypted data if the downstream sink is not set to authorize HDCP.
- **Aspect Ratio** — This option lets you set the aspect ratio to **Fill** (fills the entire output screen) or **Follow** (follows the native aspect ratio of the input).
- **Input EDID** — This option lets you select an EDID (resolution and refresh rate) emulation for the input. You can match the input EDID to the output rate or set a discrete EDID. The default is **720p @ 60 Hz**.

In addition to the factory rates, three slots are available for custom, user-defined, or captured rates (C1, C2, and C3). When no rate is captured or uploaded to a custom slot, it reverts to the default setting of 720p @ 60 Hz.

The [table](#) on the next page shows the available EDID selections.

## Input EDIDs

Resolution	23.98 Hz	24 Hz	25 Hz	29.97 Hz	30 Hz	50 Hz	59.94 Hz	60 Hz
Match Output Rate	Match current DSC output resolution (EDID only)							
640 x 480								X
800 x 600								X
1024 x 768								X
1280 x 768								X
1280 x 800								X
1280 x 1024								X
1360 x 768								X
1366 x 768								X
1440 x 900								X
1400 x 1050								X
1600 x 900								X
1680 x 1050								X
1600 x 1200								X
1920 x 1200								X
480p							X	X
576p						X		
<b>720p*</b>	X	X	X	X	X	X	X	<b>X*</b>
1080i						X	X	X
1080p	X	X	X	X	X	X	X	X
2K (2048 x 1080)	X	X	X	X	X	X	X	X

\*Default resolution and rate

### Selecting an input EDID

1. From the **Input** menu, select **Input EDID**.
  2. Press the ◀ or ▶ button to select a resolution.
  3. Press the ▲ or ▼ button to select a refresh rate for the resolution.
  4. When finished, press Menu to return to the **Input** submenu or wait for the DSC to time out (approximately 1 minute). Your selections are saved and appear next time you open the OSD.
- **Capture Output EDID** — This option lets you select one of the three custom EDID slots (C1, C2, or C3) to which the EDID of the connected input device can be assigned when recorded and stored in the internal EDID list. If no EDIDs have been captured and saved, the default EDID for this field is 720p @ 60 Hz, LPCM 2-Ch.

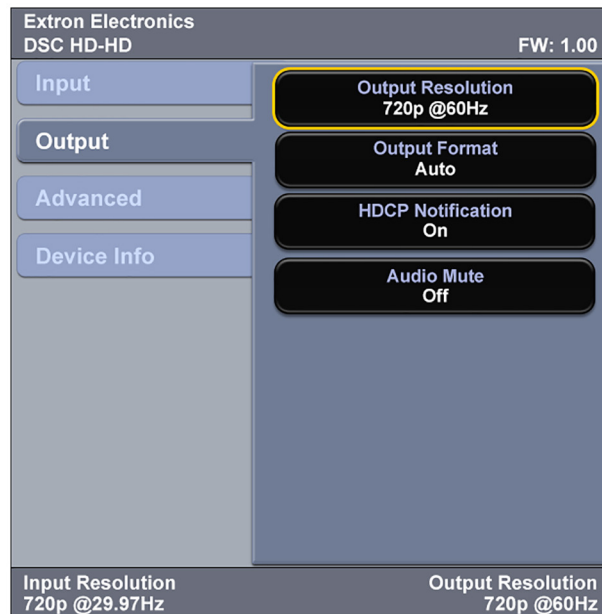
### Capturing the output EDID

To capture and save the output EDID:

1. From the **Input** menu, select **Input EDID**.
2. Press the ◀, ▶, ▲, or ▼ button to step through the EDID slot selections.
3. When the desired custom slot is displayed, press the Enter button. A confirmation prompt appears in the Capture field.
4. Press Enter again as instructed. The captured EDID is displayed in the field next to the slot you selected and is assigned as your input EDID.
5. When finished, press Menu to return to the **Input** submenu or wait for the DSC to time out (approximately 1 minute). Your EDID is saved and appears in this option field next time you open the OSD.

## Output Submenu

This submenu allows you to configure the output of the DSC HD-HD.



**Figure 12. Output Submenu**

- **Output Resolution** — This option lets you select the resolution and refresh rate for the connected output display. The DSC HD-HD has a range of resolutions from which to choose (see the [EDID table](#) on the previous page for the settings that are available for this model). The available refresh rates depend on the selected resolution.

To select a resolution:

1. Select **Output Resolution** from the **Output** submenu and press Enter.
2. Press the ◀ or ▶ button to select a resolution.
3. Press the ▲ or ▼ button to select a rate for the resolution.
4. When you enter a new resolution, a message appears on the display, prompting you to press Enter to confirm your selection.

**NOTE:** If you do not confirm your resolution and rate selection within 15 seconds, the scaler returns to the previously selected resolution and rate.

- **Output Format** — This option lets you set the HDMI output format. Select **Output Format** from the **Output** submenu, then press any of the arrow buttons to step through the options. The choices are:

- **Auto** (based on the EDID of the sink) (default)
- **DVI RGB 444**
- **HDMI RGB 444 Full**
- **HDMI RGB 444 Limited**
- **HDMI YUV 444 Full**
- **HDMI YUV 444 Limited**
- **HDMI YUV 422 Full**
- **HDMI YUV 422 Limited**

Your selection takes effect after 3 seconds. To enable the selection immediately, press Enter.

- **HDCP Notification** — This option provides a means of determining if HDCP content restrictions are preventing a video signal from passing. The DSC notifies you if you are trying to view HDCP protected content through a non-HDCP compliant HDMI/DVI display. The display shows either of the following:
  - A green screen with **HDCP CONTENT** in a bouncing text box is displayed on the output if the connected device is HDCP compliant and an HDCP input has been selected.
  - The output mutes to black if the connected device is **not** HDCP compliant and an HDCP Authorized input with protected content is selected.
 After selecting this option, press any arrow button to toggle between **Off** and **On**.
- **Audio Mute** — This option lets you mute and unmute global audio. Press any arrow key to toggle between **Off** (audio is **not** muted, the default) and **On**.

### Advanced submenu

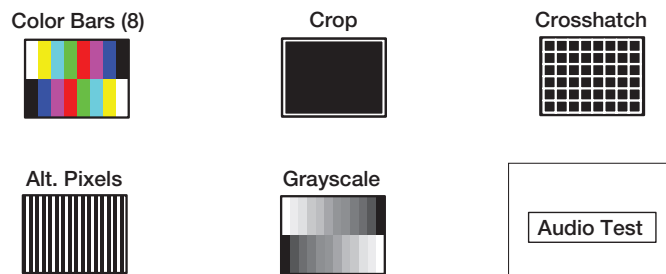
This submenu allows you to configure the global settings for the unit.



**Figure 13. Advanced Submenu**

The following options are available on the Advanced submenu:

- **Test Pattern** — This option lets you select a test pattern to use in setting up a display when outputting different resolutions. The following test patterns are available:



**Figure 14. Test Pattern Options**

#### NOTES:

- The Audio Test pattern displays a crop pattern with **AUDIO TEST** in a bouncing text box. It also outputs pink noise at 48 kHz, 24 bit.
- By default all test patterns include a single pixel wide crop pattern line.

- **Screen Saver and Timeout** — This option lets you enable screen saver mode, in which the video output is muted to black or blue if there is no active input video signal. It also lets you specify the output sync timeout. Screen saver mode allows display devices (such as an LCD panel, plasma screen, or projector) to enter low power or standby state to increase panel or lamp life.
  - To select the screen saver color, press the ◀ or ▶ button. The options are **Black** (default) or **Blue**.
  - To set the sync timeout from the **Advanced** submenu, press the ▲ or ▼ button. You can select a duration of 0 through 500 seconds before the output sync times out. The default is **Never**, meaning that the sync does not time out.

**NOTE:** The DSC exits screen saver mode when a front panel button is pressed or an active input is detected. If the unit is in front panel lock (executive) mode (see [Locking the Front Panel \(Executive Mode\)](#) on page 20), front panel button presses have no effect on screen saver mode.

- **Factory Reset** — This option lets you reset the unit to its factory-installed values (removing any user-defined values) while retaining the current firmware version.

To reset using the OSD:

  1. Select **Factory Reset** from the **Advanced** submenu and press Enter.
  2. Press and hold the Enter button as instructed by the prompt until **Factory Reset** is displayed in a text box. The message remains for approximately 1 minute after the reset is complete to allow time for the display device to sync with the DSC output. (The equivalent SIS command is **[Esc] zxxx ↵**.) For other reset methods, see [Resetting the Unit](#) on page 20.



## Device Info Screen

This read-only screen provides a quick view of certain selections, parameters, and status information for the DSC. Some of these items are also on other DSC screens. However, the Device Info screen provides them all on a single screen for a system overview.

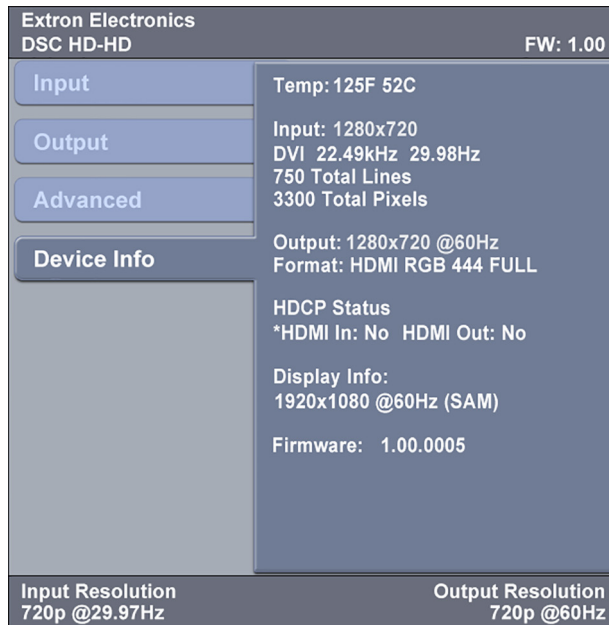


Figure 15. Device Info Screen

## Changing the Output Resolution and Refresh Rate

In addition to the **Output submenu** (see page 16), other options are available for setting the output resolution and refresh rate, include resetting the output rate using the front panel ▼ button (see **Resetting the Output Rate** on the next page), SIS commands (see the **Output Configuration SIS commands**, beginning on page 26), and the PCS configuration program (see the help file for the program).

### Custom Rates

In addition to the 42 factory output resolutions, 3 custom user-defined rates are available for the DSC HD-HD via SIS commands (see the **Output Configuration SIS commands** for the command format) or the PCS configuration program (see the program help file). When no custom EDIDs are defined, these three resolutions and rates default to 720p @ 60 Hz. The OSD dynamically updates itself based on the current file stored in the custom EDID slot. For example, if a custom 720p EDID has been uploaded, the OSD would read C1 : 720P @ 60 Hz.

### Importing an HDMI EDID

You can also import (“capture”) the EDID of a connected HDMI sink to use as a custom rate. This EDID can be saved and stored in one of three custom EDID slots, which are then available for custom EDID emulation or custom output rate generation (custom rate based on the preferred timings of the EDID) (see the **EDID commands** on page 29).

**NOTE:** If an imported or custom rate is not a valid output resolution, the output reverts to the default (720p @ 60 Hz).

## Resetting the Output Rate

On the front panel, **Hold ▼ for XGA/720p** is printed above the arrow buttons. If an output image cannot be displayed due to an incompatible output rate, you can use the front panel buttons to toggle the output rate between 1024x768 @ 60 Hz and 720p @ 60 Hz. To set the rate or toggle between the two available rates:

1. Ensure that the OSD is closed by pressing and holding the Menu button for 3 seconds.
2. Press and hold the ▼ button for approximately 5 seconds to toggle between the VESA and SMPTE rates.

## Locking the Front Panel (Executive Mode)

To prevent access by unauthorized users or accidental changes to the DSC settings, you can lock the front panel controls by placing the DSC in executive mode. In this mode, all front panel buttons are disabled and control is available only by the PCS configuration software or SIS commands.

**To lock the front panel**, do either of the following:

- Press and hold the front panel Menu and ▼ buttons until the OSD displays the message **Executive Mode Enabled** (approximately 5 seconds). The message remains on the OSD approximately 2 seconds.
- Enter the **Enable** SIS command (see the **Front Panel Lock (Executive Mode) commands** on page 30).

**To unlock the front panel**, do either of the following:

- Press and hold the front panel Menu and ▼ buttons again until the OSD displays **Executive Mode Disabled** (approximately 5 seconds). The message remains on the OSD approximately 2 seconds.
- Enter the **Disable** SIS command (see the **Front Panel Lock (Executive Mode) commands**).

## Resetting the Unit

Resetting the unit causes various settings to revert to the defaults that were set at the factory. Resets can be performed from the front panel buttons, the OSD, or SIS commands. The following resets are available:

- **Factory defaults:** This reset clears all user-specified settings but retains the latest firmware version. You can perform this reset by:
  - Selecting **Factory Reset** from the **Advanced** submenu of the OSD (see the **Factory Reset option** of the **Advanced** submenu on page 18)
  - Entering the **Reset all device settings to factory default** SIS command (see the **Reset command** on page 30)

When the reset is complete, the message **Factory Reset** is displayed on the OSD.

- **Factory firmware:** This reset returns the unit to its factory default settings, including the original firmware with which it was shipped. All user settings are cleared. To perform this reset, press and hold the Enter button for 20 seconds while applying power to the unit. When the reset is completed, the message **Firmware Reset** appears on the OSD.

**NOTE:** The Firmware Reset and Factory Reset messages are displayed for 1 minute after the reset to allow time for the display device to sync with the DSC output.

# Remote Configuration and Control

This section describes the connections through which the DSC can be configured and controlled remotely via SIS commands and describes the commands that are available. Topics include:

- **SIS Commands**
- **Windows-based Configuration Program**

The DSC can be configured and controlled using the Extron Simple Instruction Set (SIS) of commands. Commands are issued via a host computer attached to the front panel USB port. To enter the commands, you can use an application such as the Extron DataViewer utility, available at [www.extron.com](http://www.extron.com) (see the DataViewer help file to use this interface).

## SIS Commands

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the DSC determines that a command is valid, it executes the command and sends a response to the host device. All responses from the scaler to the host end with a carriage return and a line feed (CR/LF = ↵), indicating the end of the response character string (one or more characters).

## DSC-initiated Messages

When a local event such as a front panel selection or adjustment takes place, the DSC scaler responds by sending a message to the host. No response is required from the host. Example scaler-initiated messages are listed here.

- **Reconfig ↵**

The DSC sends this response when a change in the input frequency is detected.

- **Hp1g0 ↵**

The DSC HD-HD sends this response when a hot plug event on the output is detected (for example, when the unit is unplugged and reconnected).

## Error Responses

When the DSC receives a valid command, it executes the command and sends a response to the host device. If the unit is unable to execute the command because the command contains invalid parameters, it returns an error response to the host. This code is displayed on the host interface utility screen on your computer. The following codes may appear:

E01 — Invalid input number  
E10 — Invalid command  
E13 — Invalid parameter  
E14 — Invalid command for this configuration  
E17 — Invalid command for signal type  
E22 — Busy

## Using the Command and Response Table

The **Command and Response Table for SIS Commands**, beginning on page 26, lists the commands that the DSC scaler recognizes as valid, the responses that are returned to the host, a description of the command function or the results of executing the command, and an example of each command in ASCII.

**NOTE:** Unless otherwise stated, upper- and lowercase text can be used interchangeably in the commands.

ASCII to HEX Conversion Table										Esc 1B	CR 0D	LF 0A
Space 20	! 21	" 22	# 23	\$ 24	% 25	& 26	' 27	( 28	) 29	*	2A	+ 2B
, 2C	- 2D	• 2E	/ 2F	0 30	1 31	2 32	3 33	4 34	5 35	6 36	7 37	8 38
9 39	: 3A	; 3B	< 3C	= 3D	> 3E	? 3F	@ 40	A 41	B 42	C 43	D 44	E 45
F 46	G 47	H 48	I 49	J 4A	K 4B	L 4C	M 4D	N 4E	O 4F	P 50	Q 51	R 52
S 53	T 54	U 55	V 56	W 57	X 58	Y 59	Z 5A	[ 5B	\ 5C	] 5D	^ 5E	_ 5F
` 60	a 61	b 62	c 63	d 64	e 65	f 66	g 67	h 68	i 69	j 6A	k 6B	l 6C
m 6D	n 6E	o 6F	p 70	q 71	r 72	s 73	t 74	u 75	v 76	w 77	x 78	y 79
z 7A	{ 7B	7C	}	7D	~ 7E	DEL 7F						

Figure 16. ASCII to Hexadecimal Character Conversion Table

## Symbol Definitions

- = Space
- ↵ = Carriage return with line feed
- ← or | = Carriage return with no line feed
- Esc** or W = Escape

### \*NOTES:

- Values with an asterisk (\*) depend on the resolution.
- There is no variable (**xn**) for the input and output number. Because there is only one input and one output, the number for each is always 1.

- X1** = On or off (enable or disable)  
 Ø = Off or disable  
 1 = On or enable
- X2** = Aspect ratio  
 1 = Fill: each input rate automatically fills the entire output raster (default)  
 2 = Follow: each input rate is displayed with its native aspect ratio
- X3** = Output resolution  
 Ø = EDID of the connected HDMI display. Holds last connected display EDID until a new display is attached or a power cycle occurs. Valid for EDID export only.  
 2Ø1 = Custom output rate 1  
 2Ø2 = Custom output rate 2  
 2Ø3 = Custom output rate 3

<b>SIS Variables for DSC HD-HD Resolutions and Refresh Rates (X3 = Ø through 53)</b>								
<b>Resolution</b>	<b>23.98 Hz</b>	<b>24 Hz</b>	<b>25 Hz</b>	<b>29.97 Hz</b>	<b>30 Hz</b>	<b>50 Hz</b>	<b>59.94 Hz</b>	<b>60 Hz</b>
<b>Match Output Rate:</b> Match current scaler output resolution (EDID only)								Ø
<b>640x480</b>								1Ø
<b>800x600</b>								11
<b>1024x768</b>								12
<b>1280x768</b>								13
<b>1280x800</b>								14
<b>1280x1024</b>								15
<b>1360x768</b>								16
<b>1366x768</b>								17
<b>1440x900</b>								18
<b>1400x1050</b>								19
<b>1600x900</b>								2Ø
<b>1680x1050</b>								21
<b>1600x1200</b>								22
<b>1920x1200</b>								23
<b>480p</b>							24	25
<b>576p</b>						26		
<b>720p</b>			29	3Ø	31	32	33	34*
<b>1080i</b>						35	36	37
<b>1080p</b>	38	39	4Ø	41	42	43	44	45
<b>2048x1080 (2K)</b>	46	47	48	49	5Ø	51	52	53

\*Default output resolution

- X4** = EDID resolution and rate:  
 2 digits with leading zero (see the resolution variables chart above)
- X5** = Output HDCP modes  
 Ø = **Follow input** — HDCP is always authenticated but encrypted only when required.  
 1 = **Always encrypt output** — HDMI outputs are always authenticated and encrypted.  
 2 = **Follow input** — HDMI outputs are always authenticated with continuous DVI trials, but encrypted only when required.  
 3 = **Always encrypt output** — HDMI outputs are always authenticated and encrypted with continuous DVI trials.
- X6** = View HDCP status  
 Ø = No sink or source device detected  
 1 = Sink or source detected with HDCP  
 2 = Sink or source detected but no HDCP present

- X7** = Test patterns:
  - 0 = Off (default)
  - 1 = Crop
  - 2 = Alternating pixels
  - 3 = Crosshatch
  - 4 = Color bars
  - 5 = Grayscale
  - 6 = Audio test (crop pattern, OSD text **Audio Test**. Outputs pink noise at 48 kHz, 24 bits.)
- X8** = Digital output format
  - 0 = Auto (default). (HDMI – RGB Full to a CEA sink or DVI to a non-CEA sink).  
OSD menu shows **Auto**.)
  - 1 = DVI (RGB 444, 0-255, no audio, no InfoFrames)  
OSD menu shows **DVI RGB 444**.)
  - 2 = HDMI RGB Full (RGB 444, 0-255, audio, InfoFrames.  
OSD menu shows **RGB Full**.)
  - 3 = HDMI RGB Limited (RGB 444, 16-235, audio, InfoFrames.  
OSD menu shows **RGB Limited**.)
  - 4 = HDMI YUV Full (YUV 444, 0-255, audio, InfoFrames.  
OSD menu shows **YUV 444 Full**.)
  - 5 = HDMI YUV Limited (YUV 444, 16-235, audio, InfoFrames.  
OSD menu shows **YUV 444 Limited**.)
  - 6 = HDMI YUV Full (YUV 422, 0-255, audio, InfoFrames.  
OSD menu shows **YUV 422 Full**.)
  - 7 = HDMI YUV Limited (YUV 422, 16-235, audio, InfoFrames.  
OSD menu shows **YUV 422 Limited**.)
- X9** = Video mute
  - 0 = Off (unmute) (default)
  - 1 = On (mute to black screen)
  - 2 = On (mute all output sync and video)
- X10** = Screen saver duration (output sync timeout): 1 to 500 seconds in 1-second increments
  - 0 = The output sync is instantly disabled with no active input. OSD is never displayed.
  - 501 = The OSD (output sync) never times out (default).
- X11** = Screen saver mode
  - 1 = Black screen (default)
  - 2 = Blue screen with OSD bouncing text
- X12** = Audio input type
  - 0 = None (DVI)
  - 2 = LPCM 2-ch
  - 3 = Multi-ch
- X13** = Input video format
  - 0 = No input signal detected
  - 1 = HDMI
  - 2 = DVI
  - 3 = Invalid signal
- X14** = Internal temperature (in degrees Celsius)
  - Response is 2 digits, padded with a zero.
- X15** = Active pixels
  - Response is 4 digits, padded with zeros.
- X16** = Active lines
  - Response is 4 digits, padded with zeros.
- X17** = Horizontal and vertical frequencies
  - Format is 3 digits with a single decimal place and leading zeros (example: 075.3)
- X18** = Video signal presence
  - 0 = No video signal detected
  - 1 = Input signal detected.

- X19** = Verbose mode
- 0 = None (verbose mode and tagged responses for queries off)
  - 1 = Verbose mode on (default)
  - 2 = Verbose mode off, tagged responses for queries on
  - 3 = Verbose mode on, tagged responses for queries on

**NOTES:**

- In **verbose response** mode, the device (the DSC) responds with more information than it usually would.

For example, the DSC can send out a notice of a change in some setting without receiving a query via your PC. That change could have been a result of an internal process, a selection made from the front panel, or a selection made from the OSD. This is an example of a verbose (wordy) relationship between the controller and a connected device. Verbose mode creates more network traffic than usual, which can slow down network performance.

- If **tagged responses** are enabled, all “view” commands return the command string plus the data, the same as in responses for setting a value. For example:

**Command:** `[Esc] M SSAV` ←

**Response:** `SsavM X11` ← (verbose mode)  
or `X11` ← (non-verbose mode)

- X20** = Unit name: A text string of up to 24 characters.
- A-Z, 0-9, and the hyphen (-) are permitted.
  - The first character must be a **letter**.
  - The last character **cannot** be a hyphen.
  - No blank or space characters are permitted as part of the name.
  - No distinction is made between uppercase and lowercase letters.

- X21** = Default name: DSC HD-HD

- X22** = Model description: **Digital Scaling Converter**

## Command and Response Table for SIS Commands

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
<b>Input Configuration</b>			
<b>HDCP Authorization</b>			
On	<b>[Esc]</b> E 1 * 1 HDCP ←	Hdcp E 1 * 1 ↵	Enable HDCP encryption support for the input (default).
Off	<b>[Esc]</b> E 1 * Ø HDCP ←	Hdcp E 1 * Ø ↵	Disable HDCP encryption support for the input.
View setting	<b>[Esc]</b> E 1 HDCP ←	<b>[X1]</b> ↵ <i>In verbose modes 2 and 3:</i> Hdcp E 1 * <b>[X1]</b> ↵	View HDCP encryption support setting <b>[X1]</b> . For <b>[X1]</b> : Ø = HDCP authorization disabled 1 = HDCP authorization enabled (default)
<b>Film Detection</b>			
On	<b>[Esc]</b> 1 * 1 FILM ←	Film 1 * <b>[X1]</b> ↵	Enable automatic detection of film mode (3:2, 2:2, and 24:1 pull-down) (default).
Off	<b>[Esc]</b> 1 * Ø FILM ←	Film 1 * <b>[X1]</b> ↵	Disable automatic film mode detection.
View setting	<b>[Esc]</b> 1 FILM ←	<b>[X1]</b> ↵ <i>In verbose modes 2 and 3:</i> Film 1 * <b>[X1]</b> ↵	View the current film mode setting <b>[X1]</b> . For <b>[X1]</b> :
<b>Aspect Ratio</b>			
Set the input to Fill	<b>[Esc]</b> 1 * 1 ASPR ←	Aspr 1 * 1 ↵	Set the input to always fill the entire output raster (default).
Set the input to Follow	<b>[Esc]</b> 1 * 2 ASPR ←	Aspr 1 * 2 ↵	Set the input to preserve its native aspect.
View aspect setting	<b>[Esc]</b> 1 ASPR ←	<b>[X2]</b> ↵ <i>In verbose modes 2 and 3:</i> Aspr 1 * <b>[X2]</b> ↵	View input aspect ratio setting <b>[X2]</b> . For <b>[X2]</b> : 1 = Fill: Input rate fills the entire output raster (default). 2 = Follow: Input rate is displayed with its native aspect ratio.
<b>Output Configuration</b>			
<b>Output Resolution</b>			
Set output rate	<b>[Esc]</b> <b>[X3]</b> RATE ←	Rate <b>[X3]</b> ↵	Select the output resolution and refresh rate.
View output rate	<b>[Esc]</b> RATE ←	<b>[X3]</b> ↵ <i>In verbose modes 2 and 3:</i> Rate <b>[X3]</b> ↵	Show the selected output rate. <b>[X3]</b> is a 2-digit number that represents the resolution and rate (see the chart on page 23).



Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
<b>Output Configuration (continued)</b>			
<b>Output HDCP Mode</b>			
Set HDCP mode	[Esc] S [X5] HDCP ←	Hdcp S [X5] ↵	Set the HDCP mode to [X5]. For [X5]: <b>0 = Follow input:</b> HDCP is always authenticated but encrypted only when required. <b>1 = Always encrypt output:</b> HDMI outputs are always authenticated and encrypted. <b>2 = Follow input:</b> HDMI outputs are always authenticated with continuous DVI trials, but encrypted only when required. <b>3 = Always encrypt output:</b> HDMI outputs are always authenticated and encrypted with continuous DVI trials.
View HDCP mode	[Esc] S HDCP ←	[X5] ↵ In verbose modes 2 and 3: Hdcp S [X5] ↵	View the HDCP mode.
<b>Digital Output Format</b>			
Set output format	[Esc] [X8] VTPO ←	Vtpo [X8] ↵	Set the color space and format for the output to [X8]. For [X8]: <b>0 = Auto (default).</b> (HDMI – RGB Full to a CEA sink or DVI to a non-CEA sink). <b>1 = DVI (RGB 444, 0-255, no audio, no InfoFrames)</b> <b>2 = HDMI RGB Full (RGB 444, 0-255, audio, InfoFrames.</b> <b>3 = HDMI RGB Limited (RGB 444, 16-235, audio, InfoFrames.</b> <b>4 = HDMI YUV Full (YUV 444, 0-255, audio, InfoFrames.</b> <b>5 = HDMI YUV Limited (YUV 444, 16-235, audio, InfoFrames.</b> <b>6 = HDMI YUV Full (YUV 422, 0-255, audio, InfoFrames.</b> <b>7 = HDMI YUV Limited (YUV 422, 16-235, audio, InfoFrames.</b>
View output format	[Esc] VTPO ←	[X8] ↵ In verbose modes 2 and 3: Vtpo [X8] ↵	View the currently set colorspace for the digital output.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
<b>Output Configuration (continued)</b>			
<b>Video Mute (Defaults to unmuted after a power cycle.)</b>			
Mute video to black	1B	Vmt1 ↵	Mute video to a black screen.
Mute sync and video	2B	Vmt2 ↵	Mute video and sync on the output.
Unmute video and output sync	0B	Vmt0 ↵	Display the selected input.
View mute status	B	X9 ↵ <i>In verbose modes 2 and 3:</i> Vmt X9 ↵	View video mute status X9. For X9: 0 = Off (unmuted). 1 = On (mute to black). 2 = On (mute all output sync and video)
<b>Screen Saver Mode (Takes place when no signal is detected on the input.)</b>			
Set screen saver mode	Esc M X11 SSAV ↵	Ssav M X11 ↵	Sets the screen saver mode to X11. For X11: 1 = Black screen (default). 2 = Blue screen with bouncing OSD text.
View mode	Esc M SSAV ↵	X11 ↵ <i>In verbose modes 2 and 3:</i> Ssav M X11 ↵	View current screen saver mode X11.
Set time out duration	Esc T X10 SSAV ↵	Ssav T X10 ↵	Set the time before sync timeout to X10 seconds. X10 = 0-500 seconds. Default = 501 seconds (never).
View timeout duration	Esc T SSAV ↵	X10 ↵ <i>In verbose modes 2 and 3:</i> Ssav T X10 ↵	View amount of time X10 before timeout.
<b>HDCP Encryption Status</b>			
View input HDCP status	Esc I 1 HDCP ↵	X6 ↵ <i>In verbose modes 2 and 3:</i> Hdcp I 1 * X6 ↵	View the encryption status X6 for the input. For X6: 0 = No sink or source detected 1 = Sink or source with HDCP detected. 2 = Sink or source detected with no HDCP present.
View output HDCP status	Esc O 1 HDCP ↵	X6 ↵ <i>In verbose modes 2 and 3:</i> Hdcp O 1 * X6 ↵	View the encryption status X6 for the output. For X6: 0 = No sink or source detected 1 = Sink or source with HDCP detected. 2 = Sink or source detected with no HDCP present.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
<b>Audio Configuration</b>			
<b>Audio Mute (Global setting — persists after a power cycle)</b>			
Mute on	1 Z	Amt 1 ↵	Mute the audio on the output.
Mute off	Ø Z	Amt Ø ↵	Unmute the audio.
View mute status	Z	[X1] ↵ <i>In verbose modes 2 and 3:</i> Amt [X1] ↵	View audio mute status [X1]. For [X1]: Ø = Unmuted (default). 1 = Muted.
<b>Audio Input Format</b>			
Set audio input type	[Esc] I 1 * [X12] AFMT ←	Afmt I 1 * [X12] ↵	Select audio type [X12] for the input. For [X12]: Ø = None (DVI). 1 = LPCM-2Ch. 2 = Multi-Ch.
View audio type	[Esc] I 1 AFMT ←	[X12] ↵ <i>In verbose modes 2 and 3:</i> Afmt I 1 * [X12] ↵	View audio input type [X12] for the input.
<b>EDID</b>			
<b>Set, View, and Save EDID</b>			
Assign EDID	[Esc] A 1 * [X4] EDID ←	Edid A 1 * [X4] ↵	Assign EDID resolution and refresh rate [X4] to the input. [X4]: A 2-digit number with leading zero (see the EDID table on page 23).
View assigned EDID data	[Esc] A 1 EDID ←	[X4] ↵ <i>In verbose modes 2 and 3:</i> Edid A 1 * [X4] ↵	View assigned EDID resolution and refresh rate [X4] for the input.
Save output EDID	[Esc] S 1 * [X4] EDID ←	Edid S 1 * [X4] ↵	Save the EDID of the current DSC HD-HD output to EDID [X4].
<b>Advanced Configuration</b>			
<b>HDCP Notification</b>			
Enable HDCP notification	[Esc] N 1 HDCP ←	Hdcp N 1 ↵	Enable the HDCP notification (default).
Disable notification	[Esc] N Ø HDCP ←	Hdcp N Ø ↵	Disable HDCP notification. Instead, mute output and maintain sync.
View notification status	[Esc] N HDCP ←	[X1] ↵ <i>In verbose modes 2 and 3:</i> Hdcp N [X1] ↵	View HDCP notification status [X1]. For [X1]: Ø = Notification off (default) 1 = Notification on

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
<b>Advanced Configuration (continued)</b>			
<b>Test Pattern</b>			
Set test pattern	<b>[Esc]</b> <b>[X7]</b> TEST ←	Test <b>[X7]</b> ↵	Select test pattern <b>[X7]</b> . For <b>[X7]</b> : Ø = Off (default) 1 = Crop 2 = Alternating pixels 3 = Crosshatch 4 = Color bars 5 = Grayscale 6 = Audio Test (Crop pattern, OSD text <b>Audio Test</b> . Outputs pink noise at 48 kHz, 24 bits.)
View test pattern	<b>[Esc]</b> TEST ←	<b>[X7]</b> ↵ <i>In verbose modes 2 and 3:</i> Test <b>[X7]</b> ↵	View the current test pattern.
<b>Front Panel Lock (Executive Mode)</b>			
Enable lock mode	1 X	Exe 1 ↵	Lock the entire front panel.
Disable lock mode	Ø X	Exe Ø ↵	Unlock front panel controls. All front panel adjustments can be made.
View lock mode status	X	<b>[X1]</b> ↵ <i>In verbose modes 2 and 3:</i> Exe <b>[X1]</b> ↵	View current lock mode status <b>[X1]</b> . For <b>[X1]</b> : Ø = Off (default) 1 = Mode 1: complete front panel lockout.
<b>Video Signal Presence</b>			
View signal presence	<b>[Esc]</b> ØLS ←	<b>[X18]</b> ↵ <i>In verbose modes 2 and 3:</i> InØØ • <b>[X18]</b> ↵	View input signal status <b>[X18]</b> . Ø = No video signal detected 1 = Input signal detected
<b>Reset</b>			
Reset all device settings to factory default settings	<b>[Esc]</b> ZXXX ←	Zpx ↵	Reset all DSC HD-HD settings to its factory default
<b>Information Requests</b>			
View AV status information	I	Vid 1 • Typ <b>[X13]</b> • Amt <b>[X1]</b> • Blk <b>[X9]</b> • Hrt <b>[X17]</b> • Vrt <b>[X17]</b> ↵ (Responses are the same in verbose modes 2 and 3.)  <b>For [X13]:</b> Ø = No signal detected 1 = HDMI 2 = DVI 3 = Invalid signal <b>For [X1]:</b> Ø = Audio muted 1 = Audio unmuted	View video input signal type, audio mute status, video mute status, and horizontal and vertical frequencies.  <b>For [X9]:</b> Ø = Video unmuted 1 = Video muted to black 2 = All video output and sync muted <b>For [X17]:</b> Frequency as a 3-digit number with 1 decimal place and leading zeros.
Query firmware version	Q	n.nn ↵ <i>In verbose modes 2 and 3:</i> VerØ1 * n.nn ↵	View firmware version to the second decimal place.

Command	ASCII Command (Host to Scaler)	Response (Scaler to Host)	Additional Description
<b>Information Requests (continued)</b>			
Query firmware build version	* Q	<i>n . nn . nnnn</i> ↵ <i>In verbose modes 2 and 3:</i> Bld <i>n . nn . nnnn</i> ↵	View full firmware version details.
Query boot loader version, factory firmware version, and current firmware version.	Ø Q	<i>n . nn - n . nn . nnnn - n . nn . nnnn</i> ↵ <i>In verbose modes 2 and 3:</i> VerØØ <i>n . nn - n . nn . nnnn - n . nn . nnnn</i> ↵	View boot loader firmware version, factory firmware version, and current firmware version.
Query part number	N	6Ø - 1489 - Ø1 ↵ <i>In verbose modes 2 and 3:</i> Pno 6Ø - 1489 - Ø1 ↵	View the unit part number: 6Ø - 1489 - Ø1
View internal temperature	[Esc] 2ØSTAT ↵	[X14] ↵ <i>In verbose modes 2 and 3:</i> Stat2Ø • [X14] ↵	View unit internal temperature [X14] in degrees Celsius.
Set unit name	[Esc] [X20] CN ↵	Ipn • [X20] ↵	Specify a name for the unit.
Set unit name to factory default	[Esc] • CN ↵	Ipn • [X21] ↵	Reset the unit name to the factory default name (DSC HD-HD).
View unit name	[Esc] CN ↵	[X20] ↵ <i>In verbose modes 2 and 3:</i> Ipn • [X20] ↵	View the name of the unit.
View unit description	2i	[X22] ↵ <i>In verbose modes 2 and 3:</i> InfØ2 * [X22] ↵	View the model description ([X22]).
<b>Active Pixels</b>			
View	[Esc] APIX ↵	[X15] ↵ <i>In verbose modes 2 and 3:</i> Apix1 * [X15] ↵	Show active pixels [X15] for the input. [X15] is 4 digits padded with zeros.
<b>Active Lines</b>			
View	[Esc] ALIN ↵	[X16] ↵ <i>In verbose modes 2 and 3:</i> Alin1 * [X16] ↵	Show active lines [X16] for the input. [X16] is 4 digits padded with zeros.
<b>Verbose Mode</b>			
Set verbose mode	[Esc] [X19] CV ↵	Vrb [X19] ↵	Set the verbose mode.
View verbose mode	[Esc] CV ↵	[X19] ↵ <i>In verbose modes 2 and 3:</i> Vrb [X19] ↵	View current verbose mode [X19]. For [X19]: Ø = None 1 = Verbose mode (default) 2 = Tagged response for queries 3 = Verbose mode and tagged response for queries

## Windows-based Configuration Program

The Extron Product Configuration Software (PCS) is a Windows-based program for the DSC that provides a convenient way to configure the input and output, audio, and image settings. It lets you perform nearly all the other functions that can be accomplished via the front panel controls or SIS commands.

### Downloading the PCS Configuration Software from the Website

To use the Product Configuration Software, download the program from [www.extron.com](http://www.extron.com) and install it on your PC as described in the following sections. You can also download updates to the DSC software as they become available. To access the software:

1. Open the Extron web page and select the **Download** tab.
2. On the Download Center screen, click the **PCS** link on the left sidebar menu (see figure 17).



Figure 17. Software Links on the Download Page of the Extron Website

- On the PCS page, click the **Downloads** button near the center of the page (see figure 18).

[Products](#)
[Training](#)
[Markets](#)
[Tech Library](#)
[Company](#)
[Download](#)

Search

[Download Home](#)

Software

[Dante Controller](#)
[DSP Configurator Software](#)
[Global Configurator Professional](#)
[GUI Configurator](#)
[GUI Designer](#)
[IP Intercom HelpDesk Software](#)
[PCS](#)
[TouchLink for iPad](#)
[XTP System Configuration Software](#)

Control System Drivers

[Firmware](#)
[HID Modules](#)

Resources

[GUI Design Resources](#)
[TouchLink Touchpanel Themes](#)
[Architectural Design Resources](#)

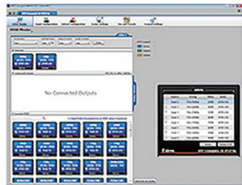
## PCS

### Product Configuration Software

**Key Features**

- Configure multiple standalone products at once from the same software application
- Includes many modules for Extron products
- All modules have same look and feel for consistency
- Automatic device discovery
- Supports devices with Ethernet or USB connectivity
- Easily backup and restore to one or more devices using Ethernet or USB

[See All Features](#)



PCS

[Click to enlarge image](#)

Version: 2.1  
Release Date: Aug. 4, 2014  
Size: 55.9 MB  
[Release Notes](#) (0.1 MB)

**Key Features added in the Current Release**

- Support for Annotator 300

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[Overview](#)
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3

[View Features](#)

PCS product configuration software combines multiple standalone product configuration modules in a single software application. Each configuration screen is designed with a consistent look and feel while product tabs along the top of the screen allow users to quickly choose between all open product configurations. With this time-saving software, many Extron products can be configured via Ethernet or USB from one interface. In each new version of PCS, newly-compatible product modules will be included as part of the download. As with all Extron software, PCS is configuration-based and does not require programming knowledge.

**Supported Products**

<a href="#">Annotator 300</a>	<a href="#">DTP T USW 233</a>	<a href="#">HDMI DA4</a>	<a href="#">MPS 602 MA</a>
<a href="#">DSC 301 HD</a>	<a href="#">DTP T USW 333</a>	<a href="#">HDMI DA6</a>	<a href="#">MPS 602 SA</a>
<a href="#">DSC 3G-HD A</a>	<a href="#">DTP T UWP 232 D</a>	<a href="#">IN1606</a>	<a href="#">PVS 405D</a>
<a href="#">DSC HD-3G A</a>	<a href="#">DTP T UWP 332 D</a>	<a href="#">IN1608</a>	<a href="#">SW2 HDMI</a>

**Figure 18. Downloads Button on the PCS Web Page**



- On the next PCS page, click the **PCS** link, located near the bottom of the page.

The screenshot shows the PCS Software Link on the PCS Web Page. The page has a navigation menu on the left with categories like Software, Control System Drivers, and Resources. The main content area features the PCS logo, key features, a 'Download Now' button, and a table of software versions. The table lists the PCS version 2.2, size 62.0 MB, and format EXE. A '4 PCS' link is highlighted in the table.

**Figure 19. PCS Software Link on PCS Web Page**

The Download Center screen appears.

- On the Download Center screen, fill in the required information, then click the **Download pcss\_vnxn.exe** button.
- If the File Download - Security Warning window appears, click **Run** to begin downloading the installer file.

**NOTE:** If you want to save the installation file to your computer hard drive to run later, click **Save**. On the Save As window that opens, save the setup file to the desired location. When you are ready to install the software, double-click on the **pcss\_vnxn.exe** icon, click **Run** on the download screen that opens, and restart this procedure at step 8.

If, instead, you see a **Download** icon at the bottom of the page, wait until the icon displays the name **pcss\_vnxn.exe**, then click it.

- On the next prompt window that opens, click **Run** to start the installation process.



8. Follow the instructions on the InstallShield Wizard screens to complete the software program installation. By default the installation creates a folder called “Extron PCS” in the following location on the computer:

c:\Program Files (x86)\Extron\Extron PCS (for Windows 7 and later)

c:\Program Files\Extron\Extron PCS (for Windows XP and earlier) **or**

If there is not already an Extron folder in your Program Files folder, the installation program creates it as well.

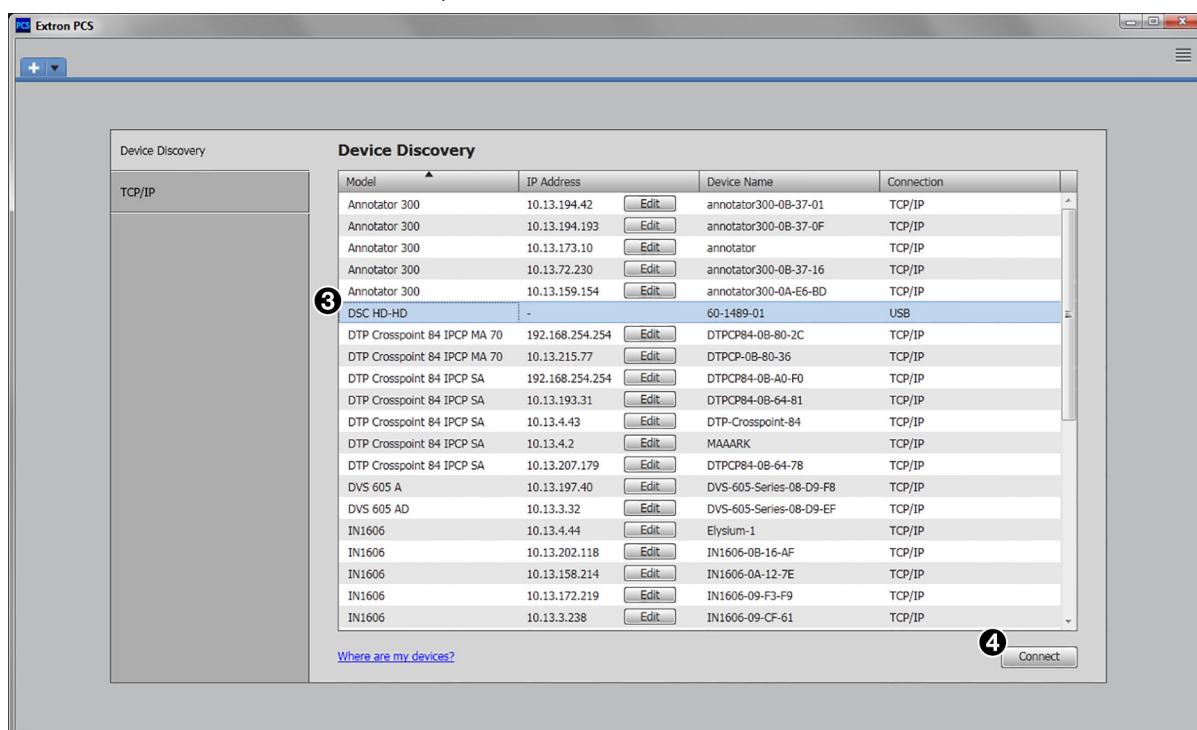
## Starting the Configuration Program

In order to use the PCS software, the DSC must be connected to your computer via the front panel USB port (see [Connecting for Remote Control](#) on page 6).

1. To start the PCS configuration program, do either of the following:
  - Double-click on the EAF.exe file, located on your computer at c:\Program Files [or Program Files(x86)]\Extron\Extron PCS.
  - Access the program from the **Start** menu on your computer as follows:
    - a. Click **Start** on your computer screen.
    - b. Select **All Programs** from the **Start** menu.
    - c. From the **All Programs** menu, select **Extron Electronics/Extron Product Configuration Software/Extron Product Configuration Software**.

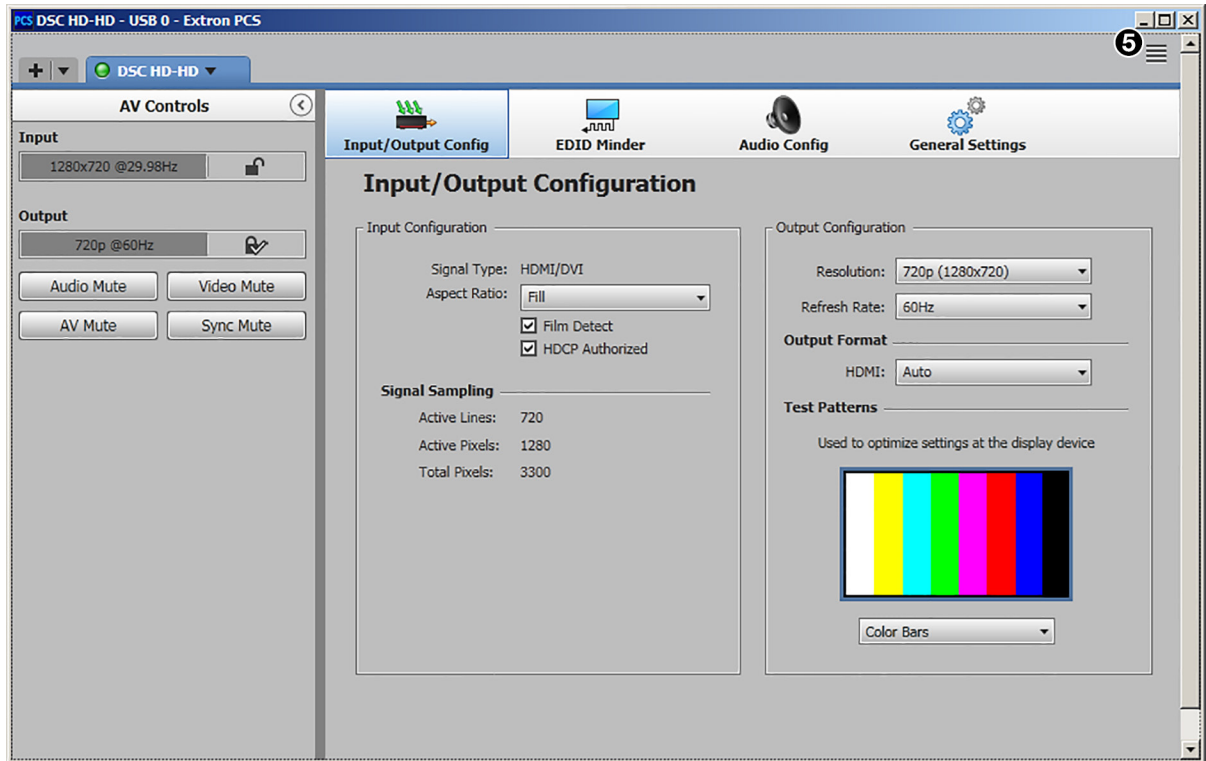
The Extron Product Configuration Software window opens.

2. The first time you open the PCS software, a Tutorial screen appears. To close this screen, click **I Get It**.
3. On the Extron PCS window, click on **DSC HD-HD** in the **Device Discovery** panel. The **Connect** button in the bottom-right corner becomes available.
4. Click **Connect** to open the DSC HD-HD main window.



**Figure 20. Device Discovery Panel with DSC HD-HD Selected**

5. On the main window, click the **PCS** menu icon in the upper-right corner (see figure 21), and select **DSC HD-HD Help** from the drop-down menu for the procedures for connecting to the DSC and configuring it.



**Figure 21.** PCS Menu Icon on the PCS Main Window

# Mounting

This section contains information on mounting the DSC scaler. See [www.extron.com](http://www.extron.com) for available Extron mounting kits and ordering information.

The DSC HD-HD scalers can be mounted by any of the methods listed below. To mount the DSC using an Extron mounting kit, see the instructions provided with the kit.

- **Rack mounting:** Attach the DSC to a standard 19-inch rack shelf. The following Underwriters Laboratories (UL) guidelines pertain to the installation of the DSC HD-HD in a rack:
  - **Elevated operating ambient temperature** — If the equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consider installing the equipment in an environment compatible with the maximum ambient temperature (122 °F, 50 °C for the DSC) specified by the Extron.
  - **Reduced air flow** — Install the equipment in the rack so that the amount of air flow required for safe operation of the equipment is not compromised.
  - **Mechanical loading** — Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.
  - **Circuit overloading** — When connecting the equipment to the supply circuit, consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings when addressing this concern.
  - **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).
- **Under-furniture mounting:** Mount the DSC under the surface of a desk, table, or podium.
- **Through-furniture mounting:** Mount the DSC through a table or desk in which a hole has been cut to enable access to the front panel.
- **Free-standing:** Attach the four rubber feet to the bottom of the DSC in the four corners and place the unit on furniture as desired.

## Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

**USA, Canada, South America,  
and Central America:**

Extron Electronics  
1230 South Lewis Street  
Anaheim, CA 92805  
U.S.A.

**Japan:**

Extron Electronics, Japan  
Kyodo Building, 16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

**Europe and Africa:**

Extron Europe  
Hanzeboulevard 10  
3825 PH Amersfoort  
The Netherlands

**China:**

Extron China  
686 Ronghua Road  
Songjiang District  
Shanghai 201611  
China

**Asia:**

Extron Asia Pte Ltd  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363  
Singapore

**Middle East:**

Extron Middle East  
Dubai Airport Free Zone  
F12, PO Box 293666  
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications were made to the product that were not authorized by Extron.

**NOTE:** If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

**USA:** 714.491.1500 or 800.633.9876  
**Asia:** 65.6383.4400

**Europe:** 31.33.453.4040  
**Japan:** 81.3.3511.7655

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

<b>Extron Headquarters</b> +1.800.633.9876 (Inside USA/Canada Only) Extron USA - West +1.714.491.1500 +1.714.491.1517 FAX	<b>Extron Europe</b> +800.3987.6673 (Inside Europe Only) Extron USA - East +1.919.850.1000 +1.919.850.1001 FAX	<b>Extron Asia</b> +65.6383.4400 +65.6383.4664 FAX	<b>Extron Japan</b> +81.3.3511.7655 +81.3.3511.7656 FAX	<b>Extron China</b> +86.21.3760.1568 +86.21.3760.1566 FAX	<b>Extron Middle East</b> +971.4.299.1800 +971.4.299.1880 FAX	<b>Extron Korea</b> +82.2.3444.1571 +82.2.3444.1575 FAX	<b>Extron India</b> 1800.3070.3777 (Inside India Only) +91.80.3055.3777 +91.80.3055.3737 FAX
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